# Price Discrimination and Vertical Integration

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# Who is ALCOA?

Alcoa is the world leader in the production and management of primary aluminum, fabricated aluminum and alumina combined, through its active and growing participation in all major aspects of the industry.

Alcoa serves the aerospace, automotive, packaging, building and construction, commercial transportation and industrial markets, bringing design, engineering, production and other capabilities of Alcoa's businesses to customers.

In addition to aluminum products and components including flat-rolled products, hard alloy extrusions, and forgings, Alcoa also markets Alcoa® wheels, fastening systems, precision and investment castings, and building systems.

The Company has 97,000 employees in 34 countries and has been named one of the top most sustainable corporations in the world at the World Economic Forum in Davos, Switzerland. (Source: Alcoa Website)

# History

- **Aluminum Company of America** (Alcoa) dominated the market for aluminum during the first half of the 20th century

- **1912**: Alcoa found guilty of using contracts to eliminate competition and entering into non-aggressiveness pact with foreign competitors.

- **1940:** A case against Alcoa is dismissed

- **1945**: Appellate court rules Alcoa guilty of antitrust violations.

- Alcoa controlled 91% of the primary market. In the 1940 case, including the secondary market and excluding the aluminum used by Alcoa **gave Alcoa 33% market share, not enough to be a monopoly**. Judge Hand reversed that decision in 1945.

# Some Definitions

-Vertical Integration: When a single firm participates in more than one successive stage of the production process
-Arbitrage: When a consumer purchases a good with the intent to immediately resell in another market at a higher price and enjoy the profit
-Ingot
*A chunk of metal
Uses of Aluminum Ingots
-Iron and Steel Industry
* Reducing Agent
-Aircraft Industry
*Airplane parts
-Electric Cable
-Cooking Utensils
-Automobile Parts

# Price Discrimination

**1. First degree price discrimination: This involves charging a different price for every sale.**

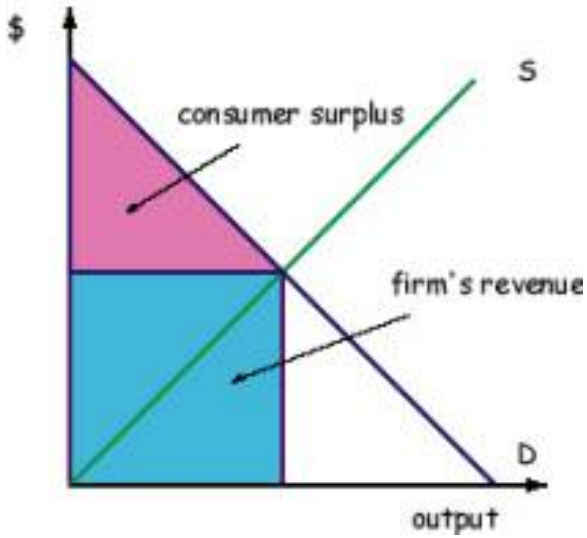



Fig. 1 Consumer surplus with fixed prices

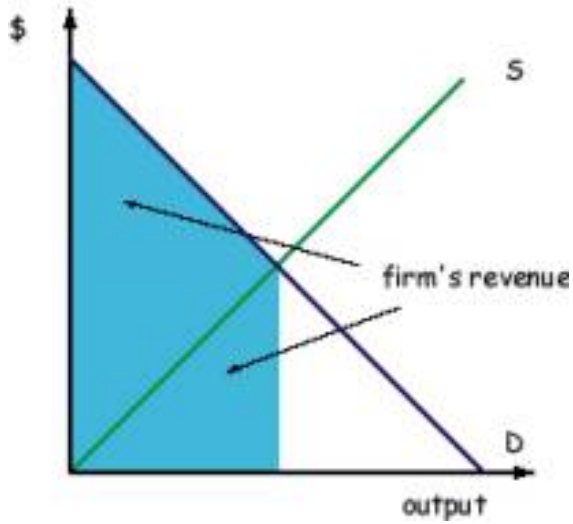



Fig. 2 First degree price discrimination

**2. Second-degree price discrimination: Second-degree price discrimination involves charging different prices for different quantities.**

# Price Discrimination

**3. Third-degree price discrimination: Third degree price discrimination can be achieved when the market can be segmented and when the segments have different elasticities of demand. The graph below is another example about the Third-degree discrimination (market for public transport journeys).**

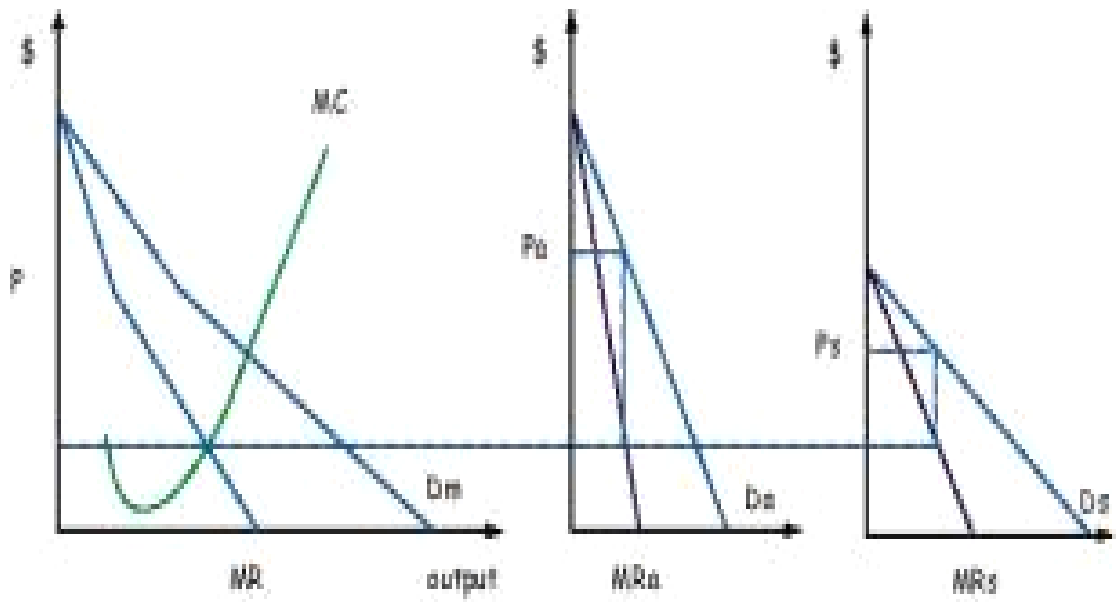



Fig. 3 Third degree price discrimination

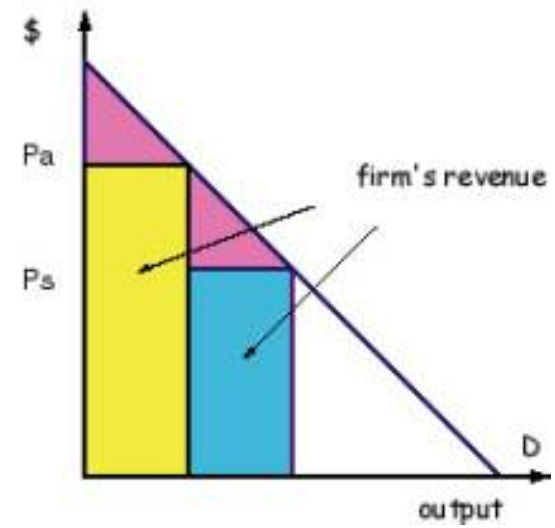



Fig. 4. Consumer surplus with third degree price discrimination

# Price Discrimination

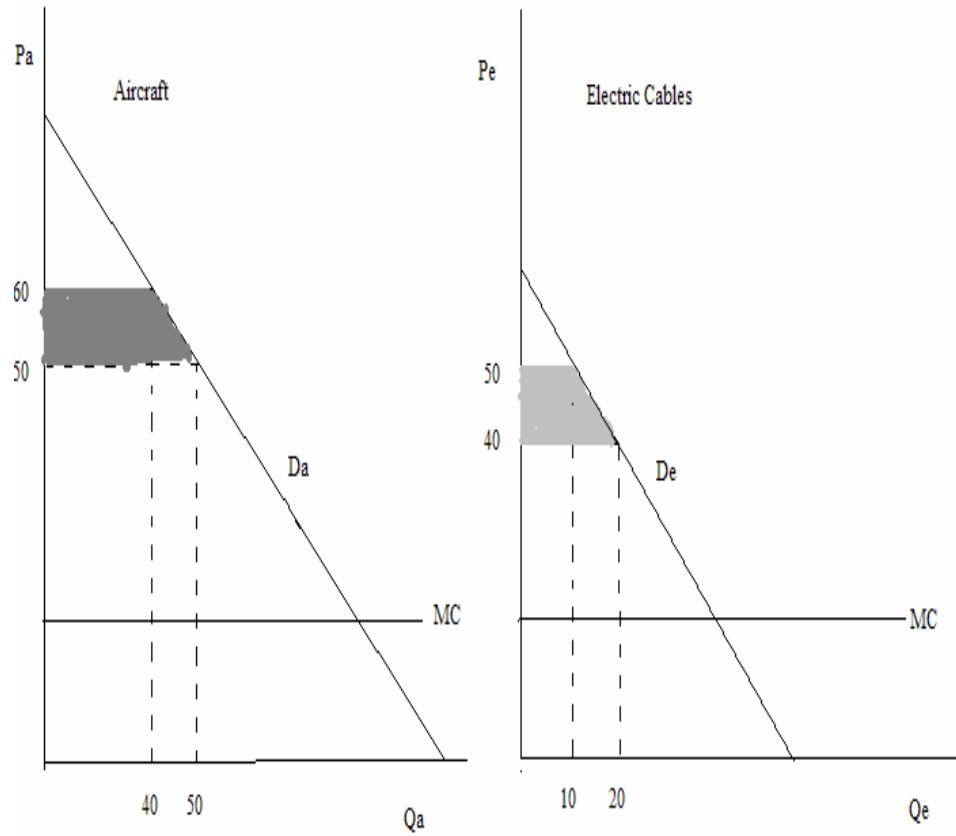
*Price Discrimination: Setting different prices for the same good

– ALCOA is a 3rd Degree Price Discrimination:

They sorted consumers into Aircraft and Electric cable groups, each with their own price per unit

# The Problem

- ALCOA, as a leading manufacturer of aluminum was in danger of being 'undersold' in the secondary market and could therefore not apply price discrimination techniques




NOTE: Figure Not Drawn to Scale (SAT Disclaimer)

## ARBITRAGE

*When a consumer purchases a good with the intent to immediately resell in another market at a higher price and enjoy the profit

# The Problem

Aluminum can be used to produce cable (elastic demand for aluminum) or to make aircraft (inelastic demand). ALCOA would want to use price discrimination to maximize its profits.

ALCOA wanted to sell at a HIGHER price to the Aircraft industry because their demand is INELASTIC with few substitutes

In the electric cable market they wanted to sell at a LOWER price, because the industry had many substitutes, namely copper.

PROBLEM: Arbitrage & Recycling

Companies could buy from ALCOA at a cheaper price and sell back to the Aircraft industry at a higher price, this takes ALCOA's potential customers because aluminum is durable. Alcoa cannot directly price discriminate because the ingots can easily be resold.

# Solution: Vertical Integration

In order to avoid being undersold, ALCOA could integrate with either the cable company or the aircraft industry.

Aircraft:

If ALCOA integrates into aircraft and sells ingots to cable (at a low price), the cable firms can resell the ingots to aircraft makers and thus steal part of ALCOA's market.

Cable :

If ALCOA integrates into cable and sells ingots to aircraft (at a high price), such resale (as occurs in integrating into aircraft) will not be profitable.

Arbitrage is prevented by integrating into cable. This enables ALCOA to charge high prices to aircraft and avoids the problem of recycling and reselling. It made more sense to integrate into an industry with ELASTIC demand.

# More Examples of Vertical Integration by ALCOA

- Automotive
- Packaging
- building and construction
- commercial transportation
- industrial markets
- cookware

*ALL ELASTIC

"In addition to aluminum products and components, Alcoa also makes and markets consumer brands including Reynolds Wrap®, Alcoa® wheels, and Baco® household wraps. Among its other businesses are closures, fastening systems, precision castings, and electrical distribution systems for cars and trucks."

Source: Alcoa website

# More Recent Vertical Integration

March 3rd 2008:

Alcoa (NYSE:AA) announced today that it has combined its Wheel Products business with its Auto and Truck Structures business to form a new business unit, called Wheel and Transportation Products. The change was made to capture adjacent growth opportunities and strengthen Alcoa's overall ground transportation portfolio. The company also said that effective immediately Kevin B. Kramer, 48, currently President, Alcoa Wheel Products, will become President, Wheel and Transportation Products.

The new business unit, headquartered in Cleveland, will serve the commercial vehicle, automotive, and defense markets with products used in a range of applications including forged aluminum wheels, aluminum space frames, specialized vacuum die cast products, niche products such as Dura-Bright® and Dura-Flange® wheels and M-Series™ medium truck wheel, as well as a variety of other aluminum components for these market

Source: Alcoa website (News & Releases)

# Recent Controversy

Feb. 29th 2008:

**Alcoa Is Sued for Fraud, Bribery by Bahrain Firm**

Alcoa was sued by a metals company controlled by the Persian Gulf nation of Bahrain for at least $1 billion on claims of fraud and bribery of officials overseas.
Aluminium Bahrain, or Alba, sued Alcoa in federal court in Pittsburgh on Wednesday, claiming it was overcharged for 15 years for alumina, an ingredient used to make aluminum. Alba, the 10th-largest aluminum producer, claims Alcoa bribed unidentified Bahraini government and company officials to get business. Alcoa is the world's largest producer of alumina and third-largest aluminum producer.

The dispute comes as Alcoa slipped from its position as the world's largest aluminum producer. Rio Tinto Group's takeover of Alcan last year made it the largest producer, followed by United Company Rusal, a Russian firm produced last year by a merger. Alain Belda, Alcoa's chief executive, has said he may seek joint ventures in the Middle East, China and North America to boost smelting capacity.

Source: Washington Post (http://www.washingtonpost.com/wp-dyn/content/article/2008/02/28/AR2008022803622.html)

# Conclusions

- ALCOA case followed patterns of 3rd degree price discrimination
- ALCOA decided to vertically intregrate into an industry with ELASTIC demand
- Did not violate antitrust laws, considered more to be a “highly competitive firm”- Alan Greenspan

# Video

- http://www.alcoa.com/global/en/about_alcoa/overview.asp